WHAT IS CLAIMED IS:

1. A method of recovering from malfunctions in a first agent module that is installed in a modular network device having a plurality of network interface modules housed in a chassis where the first agent module performs management and system controller functions, the method comprising the steps of:

installing a second agent module in the chassis and asserting a present signal of the second agent to notify the first agent module that the second agent module is present;

determining, at the second agent module, if the first agent module is installed when a present signal, a ready signal and a privilege signal of the first agent module are asserted;

synchronizing configuration information of the network interface modules from the first agent module to the second agent module after a ready signal of the second agent module is asserted;

periodically sending a message, from the first agent module to the second agent module, indicating that the first agent module has not failed;

detecting, at the second agent module, that the malfunctions in the first agent module occur if the second agent module cannot receive the message within a predetermined time interval;

rebooting the modular network device including the first agent module and the second agent module; and

performing the management and system controller functions by the second agent module using the synchronized configuration information.

2. The method as recited in claim 1 further comprising the step of:

re-synchronizing the second agent module to the first agent module when any configuration information is modified on the first agent module.

3. The method as recited in claim 2 further comprising the steps of:

asserting the ready signal of the second agent module after the rebooting step to indicate that the second agent module has completed an initialization process; and

asserting a privilege signal of the second agent module to indicate that the second agent module has taken over the management and system controller functions previously performed by the first agent module.

4. The method as recited in claim 3 further comprising the steps of:

if the first agent module recovers to a normal operating condition after the rebooting step, performing the steps of:

de-asserting the privilege signal of the first agent module; and

determining, at the first agent module, if the second agent module has taken over the management and system controller functions when the present, ready and

privilege signals of the second agent module are asserted.

5. The method as recited in claim 1 wherein the synchronizing step comprises:

transmitting a data packet having a header and data associated with the configuration information from the first agent module to the second agent module;

acknowledging the data transmitting step by returning an answer packet from the second agent module to the first agent module;

receiving the answer packet at the first agent module; and

repeating the transmitting, the replying and the receiving steps until all of the configuration information is completely transferred;

wherein the header in the data packet comprises a field indicative of a packet transmission type;

wherein the answer packet is the header having the field indicative of packet acknowledgement type.

6. The method as recited in claim 1 wherein the second agent module is installed when the modular network device is powered on.

7. The method as recited in claim 1 wherein the first agent and the second agent modules have substantially the same arrangement.

8. A method of establishing redundant management and system controller functions in a modular network device

having a plurality of network interface modules housed in a chassis, comprising the steps of:

booting the modular network device with a first agent module installed in a first slot of the chassis and a second agent module installed in a second slot of the chassis;

determining if the first agent module is a primary agent module and the second agent module is a backup agent module when a privilege signal of the first agent module is asserted and a privilege signal of the second agent module is de-asserted;

synchronizing configuration information of the network interface modules from the first agent module to the second agent module after a ready signal of the first agent module and a ready signal of the second agent module are both asserted;

periodically sending a message, from the first agent module to the second agent module, indicating that the first agent module has not failed;

detecting, at the second agent module, that the first agent module has failed if the second agent module cannot receive the message within a predetermined time interval;

rebooting the modular network device including the first agent module and the second agent module; and

performing the management and system controller functions by the second agent module using the synchronized configuration information.

9. The method as recited in claim 8 further comprising the steps of:

respectively asserting, when the modular network device is powered up, a present signal of the first agent module and a present signal of the second agent module to notify both agent modules that the first and the second agent modules are installed;

asserting the privilege signal of the first agent module to indicate that the first agent module in the first slot serves as the primary agent module;

detecting, at the second agent module, that the privilege signal of the first agent module is asserted;

holding the privilege signal of the second agent module de-asserted; and

individually asserting the ready signal of the first agent module and the ready signal of the second agent module when the first and the second agent module respectively complete an initialization process.

10. The method as recited in claim 9 further comprising the step of:

re-synchronizing the second agent module to the first agent module when any configuration information is modified on the first agent module.

11. The method as recited in claim 10 further comprising the steps of:

asserting the ready signal of the second agent module after the rebooting step in order to indicate that the second agent module has completed the initialization process; and

asserting the privilege signal of the second agent module to indicate that the second agent module has taken

over the management and system controller functions previously performed by the first agent module.

12. The method as recited in claim 11 further comprising the steps of:

if the first agent module recovers to a normal operating condition after the rebooting step, performing the steps of:

de-asserting the privilege signal of the first agent module; and

determining, at the first agent module, if the second agent module has taken over the management and system controller functions when the present, the ready and the privilege signals of the second agent module are asserted.

13. The method as recited in claim 8 wherein the synchronizing step comprises:

transmitting a data packet having a header and data associated with the configuration information from the first agent module to the second agent module;

acknowledging the data transmitting step by returning an answer packet from the second agent module to the first agent module;

receiving the answer packet at the first agent module; and

repeating the transmitting, the replying and the receiving steps until all of the configuration information is completely transferred;

wherein the header in the data packet comprises a field indicative of a packet transmission type;

wherein the answer packet is the header having the field indicative of packet acknowledgement type.

14. The method as recited in claim 8 wherein the first agent and the second agent modules have substantially the same arrangement.